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ABSTRACT

Research on the causes, prediction, and specific problems of learning disabled children is reviewed for the years 1967-1978. The literature on the following questions is examined: Can learning disabilities be predicted and will early identification help alleviate the problem? Can training programs significantly remediate reading disabilities? What effects do vision and visual perception have on learning disabilities? Is oral language an indication of learning disability? Are learning disabilities inherited and does maturation have an effect on the disabled child? Do learning disabled children exhibit poor attitudes and can these attitudes be helped through remediation? Is memory effected by learning disabilities and is speed in relation to time a significant factor? It is concluded that the majority of studies indicate that learning disabilities can be remediated through various programs and training techniques after they have been predicted and diagnosed. (DB)

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A Review of Research on Reading and Learning Disabilities

by

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U.S. Office of Education

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Research on learning disabilities and reading in the last ten years (1967-1978) shows a wide variation in causes, predictions, and specific problems of disabled children. Many questions have arisen which bear a direct impact on the process of identifying, diagnosing and remediating learning disabilities.

Can learning disabilities be predicted and will early identification help alleviate the problem?

Meuhl and Forell (1975) found early diagnosis of learning disabilities was associated with better reading performance. A study by Malmquist (1968) determined reading problems could be predicted and prevented. Satz and others (1972, 1975) in a one-, two-, three-, and four-year follow-up of a study on Predictive Antecedents of Specific Learning Disabilities found a developmental-neuropsychological test battery administered during kindergarten was extremely predictive of a child's reading performance. Research by Book (1975) also indicated the use of a battery of tests at the end of the kindergarten year was helpful in predicting reading success in the first grade. Flower's (1968) findings suggest the test of central auditory abilities may make possible early identification of children who will experience difficulty in phonics learning during the reading readiness program. Huddleston (1975) found children who failed auditory discrimination tests had more problems with phonics instruction than those children who had passed the test. Kaleta (1976) found seriation tasks better determined membership in normal or disabled groups. However, sequential category was a better discriminator of group membership with

regard to academic achievement. Rosen (1969) concluded there is a strong predictive function with the Frostig Test of Visual Perception. A study by Hagin (1971) revealed that the WPPSI does help in selection and diagnostic processes. Meuhl and Forell (1975) revealed the WISC verbal IQ score was significantly related to high school reading. Hunter and Johnson (1973), Davis (1974), and Bartin (1976) found, in separate studies, that non-readers and readers differed significantly on the following WISC subtest; Verbal, Information, Vocabulary, Digit Span, Arithmetic, Similarities and Coding. Davis (1974) went on to state the group pattern of low information, arithmetic, digit span, and coding did not hold for individual cases. He also found the WISC full scale IQ was apparently a poor measure of reading success.

Can training programs significantly remediate reading disabilities?

A variety of programs and training methods have been studied. The Boise City Program (1974) for children with auditory imperception found subjects trained for one-half hour per day, four days a week in motor, auditory, visual, and perceptual tasks showed gains greater than regular first grade gains. Heintz (1974) indicated a readiness program for disadvantaged preschool children with reading disabilities helped in areas of behavior, social relations, auditory comprehension, spoken language and motor coordination. A study by Durrell and other (1966) revealed auditory discrimination improved with training and this improvement usually resulted in a marked increase in the rate of learning to read. He also found in evaluating the methods of ear training that special practice in

visual discrimination brought gains which were comparable to ear training. When the time of training was help constant, the combination of the two yielded gains superior to either. McLeod (1969) concluded in using the Frostig Program and Gillingham method in teaching children with extreme learning problems that significant gains were made. Research done by Litchfield (1971) indicated children with visual motor and perceptual deficiencies did improve in these areas somewhat after training. Bursuk (1972) summarized in his studies on retarded readers, those who received aural-visual instruction showed greater gains in reading than did pupils who received only visual instruction. A study done by Murray (1973) found parents can be good remedial resources for their children's reading difficulties. Minskoff (1968) revealed in a study to test the effectiveness of the psycholinguistic approach to the remediation of learning disabilities that greater gains were made by those who received additional help. In using a program designed to remediate dificiencies in the auditory, aural, visual, and motor areas, Robins (1970) discovered six out of seven classes made progress at the .05 level of significance. Results of a perceptual training program by Perry (1970) for children with learning disabilities showed an improvement in reading, spelling, arithmetic and motor activity. Monroe (1974) found children with visual, motor, and perceptual deficiencies who received training made significant gains. A study by Dawson (1969) indicated significant differences in sight vocabulary and reading comprehension skills in students given special visual and auditory perceptual training. Klein (1969) indicated children with reading disabilities who received remedial training made greater gains (.05 level) than those who received perceptual training. Results of a

study by Burmeister (1970) on the relative effectiveness of inductive and deductive approaches to the instruction of work analysis indicated both experimental groups, inductive and deductive, differed on total mean scores from a control group. The experimental groups were superior in oral reading, but not in silent reading. A study done by Yvonne (1968) on the use of ocular motor training resulted in greater reading achievement than conventional procedures. The fatigue, headaches, reversal and blurring of images commonly occurring with fixation stress were found by Friedman (1970) to be eased with visual training. Dyslexia, according to Botel (1970), can be anticipated and minimized within a good reading program. The Kern County Superintendent of Schools (1974) experimental project for preschool children with deficits in oral language found individually prescribed instruction in oral language or these children helped them tremendously. In a study with reading disabled children Lewis (1970) concluded that Initial Teaching Alphabet materials in England could be used in the United States effectively. The Oralographic Reading Program was found by Smetana (1976) to significantly help non-reading learning disabled students to read. Plantec (1974) revealed children with minimal learning disabilities who were taught by either trained or untrained volunteers made greater gains than those children who were not tutored. Morsink (1976) found the materials used in the READ program were more effective than phonics or games programs in teaching learning disabled students to read. Two studies done by Robinson (1970) and Hawkins (1976) indicate learning disabled children made greater gains in a common school setting rather than segregated classrooms.

Other studies indicate no significant gains were made through special

training efforts. Maginnis (1972) found that students with the greatest reading disabilities are not helped by just a remedial program. Swanson (1970) and Dawson (1969) revealed in similar studies that the effects of perceptual-motor training on learning disabled students was insignificant. Findings in a study by McBeth and Loebenstein (1969) and two studies by Meyerson (1968, 1969) on evaluating the results of perceptual readiness programs indicate the programs were of little value in developing reading readiness skills. These conclusions were further upheld with research done by Feldman and Deutsch (1970) and Rosen (1969).

What effects do vision and visual perception have on learning disabilities?

Several studies have been done on eye dominance and eye movements in relationship to reading. Boos (1970) concluded through his research that neither eye dominance nor control was a significant factor in reading achievement. In research on eye movements, Kirshner (1970) found a positive relationship between eye movements and eye-hand coordination and perceptual disability. This correlated with Festinger's (1973) findings that errors in vertical eye movements significantly differentiated between normal and dyslexic children. In a study on fifth grade adequate and inadequate readers, Weather (1969) found a positive relationship between reading skills and visual perception patterns for boys and girls inadequate in reading. Stark (1969) revealed that although aphasic children were not capable of improving their auditory discrimination performance, they did have some ability to improve visual discrimination per-

formance. However, Dornbush (1970) discovered poor readers were able to recall more auditory materials than visual. Macione (1976), Guthrie and Goldberg (1976) all gave significant results stating disabled readers were lower (.05 level) than normal readers in areas of grammatic closure, visual closure, visual sequential memory, and sound blending. Bartin (1976) stated, contrary to the above, that poor readers were superior to average readers in visual closure. The examiner went on to say average readers were superior to severely disabled readers on auditory closure and sound blending. Mildly and severely disabled readers differed significantly only the ITPA auditory closure subtest. Kass (1970) found the psycholinguistic deficits that occurred in reading disabled children appeared to involve auditory and visual integration within the mental system. In trying to determine the extent to which certain variables in dyslexia were related to early reading progress, Clark (1972) found the difficulties of problem readers were not specific to the problem of deciphering words on a printed page. Cooke (1975) discovered non-motorically impaired children were more able to analyze words, there was no difference between motorically and non-motorically impaired children in the ability to synthesize words, also synthesis skills were superior to analysis skills in both groups. From their studies, Rugel (1975) and Symmes (1973) suggest that disabled readers were strong in visual spatial skills, however, McLeod (1969) had indicated that dyslexia is due to failure to process redundant visual linguistic signals. Weathers (1969) stated both boys and girls inadequate in reading revealed deficiencies in eye-motor coordination and figure ground. Girls inadequate in reading revealed deficiencies in perception of position in space. This did not hold true for boys. Support-

ing this was Peterson and Magaro (1972) who found field dependence was a correlate of reading achievement. Carter (1968) discovered visual and auditory distractions did not effect the reading performance of the brain injured or normal child. Statistical analysis revealed by Levin (1968) that there is no relationship between best type size and achievement, or between the reading distance typically used and test scores.

Is oral language an indication of learning disability?

Valtin (1973) found that dyslexic children were inferior in articulation, auditory discrimination and vocabulary. However, they did not differ in their understanding of the syntax of their language as concluded by Valtin (1973) and Cavanaugh (1971). Wiig and Semel (1976) summarized that speech characteristics of learning disabled students were close to normal. However, they were deficient in the ability to lable pictures, name foods, and formulate sentences. They alsc found oral language problems may persist into adolescence.

Are learning disabilities inherited and does maturation have an effect on the disabled child?

Staz, Donald, and Ross (1971) concluded that skills developed later (language and formal operations) were more delayed in older dyslexic children. They also stated skills developed ontogenetically earlier (visual-motor and visual integration) were more delayed in younger dyslexics. Lyle and Goyen (1970) indicated that retarded and adequate readers differed more at younger ages. Lewis (1972) found two reading groups of

junior high school boys showed significant differences on many variables such as role of intelligence, socio-economic status, family situation, and motor proficiency. Meuhl and Forell (1975) found poor readers in elementary school continued to be poor readers in high school. Carter (1968), Balow and Blomquist (1970) discovered older learning disabled people generally have unskilled or semi-skilled jobs. Barlow and Blomquist (1970) continued to say these people shifted jobs often and did not feel tney were "master of their own destiny." They found older learning disabled subjects did not like school or read for pleasure. This was contradicted by Carter (1968) who stated retarded readers read more for pleasure. In a study on heredity and specific reading disability, Delker (1971) found there was a positive relationship between the two. Krippner (1970) conducted a study in which etiological factors were divided into organic and functional catagories. He found the high intelligence group's disabilities were significantly more often functional and less often hereditary.

Do learning disabled children exhibit poor attitudes and can these attitudes be helped through remediation?

Cordero (1972), Carver (1971), Rowell (1970), and Robbins (1970) found internal motivation and corrective programs improve student's attitudes and reading skills. However, Black (1976) concluded that the self-concept of disabled readers was significantly lower than normal readers. This can be shown by Stavariano's (1972) study in which reading deficit groups exhibited more withdrawn, constricted, dependent, and organic patterns in drawings.

Is memory effected by learning disabilities and is speed in relation to time a significant factor?

Garrott (1975), Rugel (1975), and Neville (1970) concluded in similar studies that poor readers are disabled in the areas of automatic-sequential and short-term memory skills while they show strengths in areas of visual organization and have average ability in representation and association skills. Kluever (1970) found, contrary to the above, that memory is normal for disabled readers. Griffin (1970) and Hunter (1973) surmized that disabled readers were more constricted in their attention than normal readers of similar chronological age. When the reading levels were matched, disabled readers were similar to younger normal readers on all measures of constricted flexible control. Spring (1973) stated there is a significant correlation between reminiscence and the Attention-Span Factor. He also found that methylphenidate weakens performance decrement. Drake (1970), Eaken and Douglas (1972) and Lyle (1977) concluded that poor readers were significantly inferior on all automatization tasks. In a study conducted by Spring (1973), it was found that the central-processing speed of poor readers deteriorated during a ten minute period of testing. Broski (1975) found learning disabled children in higher grades were more able to comprehend rate-altered instruction than those in lower grades. Comprehension was not affected by changes in work rate from 95-175 words.

Other interrelated results from research on learning disabilities and reading include: Harris (1968) concluded that although it is possible that subclinical organic brain pathology exists in a significant

number of reading cases, it does not significantly affect the auditory integration. Deutsch (1972) found that poor auditory discrimination is a major intervening variable between social conditions and reading retardation (stronger for Blacks than Whites). Kaleta (1976) found the maturational lag theory was supported as an explanation of learning disability. White (1972) surmized that reading retardation is related to problems of a logical nature. Goodstein and Kahn (1975) found the relationship between measures of intelligence, reading and math achievement in disabled children was relatively independent. Greene (1974) concluded the project, Helping Eliminate Early Learning Disabilities, accomplished most management and training objectives and developed a significant group of materials. However, the instructional objectives were not attained. Campbell (1977) found the use of typewriters by learning disabled students facilitated the acquisition of reading-vocabulary skills more than did handwriting.

Research on learning disabilities in the last ten years is very extensive, however, results are not conclusive. The majority of studies indicate learning disabilities can be remediated through various programs and training techniques after they have been predicted and diagnosed. Further investigations must be conducted in order to alleviate the problems encountered by the learning disabled child.

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